

Appl. No. : 10/783,044
Filed : February 19, 2004

SUMMARY OF INTERVIEW

Applicant appreciates the courtesies extended by the Examiner to the undersigned during the telephonic interview conducted on February 13, 2006. The participants in that interview were the Examiner and the undersigned. The undersigned noted that the Office Action did not refer to particular portions of the cited Applied Materials (WO 99/41423), Grill et al. (U.S. 6,497,963) and Lee et al. (U.S. 6,020,458) references to support the § 102 rejections. In response, the Examiner pointed to the following in those references:

Applied Materials: p. 5; p. 7; Figure 10H (reference nos. 714, 718) and p. 25 with reference to Figure 10H.

Grill et al: column 5, line 14; column 6, line 40; Figure 6 (reference nos. 44 and 38), and columns 7-8 with reference to Figure 6.

Lee et al.: column 19, line 15; Claim 14; Figure 6 (reference nos. 620, 628, 636, 644).

Appl. No. : 10/783,044
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REMARKS

Amendments to the Claims

Applicant respectfully requests entry of the Amendments to the Claims set forth above in which Claim 1 has been amended and new Claim 10 has been added. The amendments to Claims 1 and 10 are supported in the specification as filed at, e.g., paragraphs 0071.

Information Disclosure Statement (IDS)

Applicant acknowledges receipt of an initialed copy of the IDS submitted on June 22, 2005.

Claim Rejections - 35 U.S.C. § 102(a) and (e)

Claims 1, 4, 5 and 9 have been rejected under 35 U.S.C. § 102(a) as being anticipated by Applied Materials. The Office has taken the position that Applied Materials at p. 5, p. 7, Figure 10H (reference nos. 714, 718) and p. 25 with reference to Figure 10H, discloses the multi-layered films recited in Claims 1, 4, 5 and 9. Applicant respectfully traverses this rejection.

Applied Materials does not disclose or suggest a multi-layered film comprising the combination of limitations recited in Claims 1, 4, 5, and 9, including a dielectric constant of about 2.7 or lower. Applied Materials at page 8, line 22 discloses an oxidized organo silicon layer having a dielectric constant of about 3.0, but does not disclose or suggest that the film is multi-layered. Applied Materials discloses depositing a low k dielectric film onto another low k dielectric film at page 5, lines 8-12, but does not disclose or suggest that the resulting structure has a dielectric constant of about 2.7 or lower as claimed. The Examiner points to layers 714, 718 in Applied Materials Figure 10H, but those layers are separated by layer 716 and thus are not in contact with one another as recited in Claim 1.

Therefore, because Applied Materials does not disclose or suggest a multi-layered film meeting the combination of limitations recited in Claims 1, 4, 5 and 9, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Claims 1, 4, 5 and 9 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Grill et al. The Office has taken the position that Grill et al. at column 5, line 14; column 6, line

Appl. No. : **10/783,044**
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40; Figure 6 (reference nos. 44 and 38), and columns 7-8 with reference to Figure 6, discloses the multi-layered films recited in Claims 1, 4, 5 and 9. Applicant respectfully traverses this rejection.

Grill et al. does not disclose or suggest a multi-layered film comprising the combination of limitations recited in Claims 1, 4, 5, and 9, including a second layer that has an elemental composition that is substantially different from the first layer. As explained in the specification at paragraph 0075, the elemental composition of a layer is substantially different from an adjacent layer if the carbon, silicon, oxygen or fluorine content differs by 5% or more. Grill et al. does not disclose or suggest that the SiCOH film 38 has a different elemental composition from the overlying SiCOH film 44. To the contrary, Grill et al. at column 8, line 10 refers to both layers collectively as "the SiCOH film", indicating that both layers 38, 44 have the same composition.

Therefore, because Grill et al. does not disclose or suggest a multi-layered film meeting the combination of limitations recited in Claims 1, 4, 5 and 9, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Claims 1, 4, 5 and 9 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Lee et al. The Office has taken the position that Lee et al. at column 19, line 15; Claim 14; and Figure 6 (reference nos. 620, 628, 636, 644), discloses the multi-layered films recited in Claims 1, 4, 5 and 9. Applicant respectfully traverses this rejection.

Lee et al. does not disclose or suggest a multi-layered film comprising the combination of limitations recited in Claims 1, 4, 5, and 9, including a second layer that has an elemental composition that is substantially different from the first layer. In particular, Lee et al. does not disclose or suggest that any of the dielectric layers 620, 628, 636, 644 have compositions that are different from one another.

Therefore, because Lee et al. does not disclose or suggest a multi-layered film meeting the combination of limitations recited in Claims 1, 4, 5 and 9, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Appl. No. : 10/783,044
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Claim Rejections - 35 U.S.C. § 103(a)

Claims 2-3 and 6-8 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Applied Materials, Grill et al. or Lee et al. The Office recognizes that none of the cited references disclose the claimed gradations or compositions, but takes the position that “[i]t would have been obvious to one of ordinary skill in the art to gradient the interface between the layers, as this technique is known in the art to improve adhesion between the layers.” The Office also takes the position that “[i]t would have been obvious to one of ordinary skill in the art to provide the layers with the claimed composition, as one in the art would optimize the composition to produce the claimed electrical properties desired.”

However, the Office does not point to any teaching or suggestion in the cited references, nor to any other evidence of record, nor provides a technical line of reasoning to support either of these positions. See M.P.E.P. § 2144.03(AB) (“It is never appropriate to rely solely on ‘common knowledge’ in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.”) Applicant respectfully traverses the positions taken by the Office, and respectfully requests that the Office withdraw these positions or provide supporting documentary evidence. In the absence of a properly supported teaching or suggestion to modify or combine, there is no *prima facie* case of obviousness. See M.P.E.P. § 2143.

For the reasons discussed above, each of Applied Materials, Grill et al. and Lee et al. fail to disclose all the limitations recited in Claims 1, 4, 5 and 9. Applicant respectfully submits that Applied Materials, Grill et al. and Lee et al., each considered alone or in any combination, also fail to teach or suggest all the limitations recited in Claims 1, 4, 5 and 9, and thus fail to render those claims unpatentable under 35 U.S.C. § 103(a). Claims 2-3 and 6-8 depend from one or more of Claims 1, 4, 5 and 9 and recite additional limitations that further distinguish the subject matter of Claims 2-3 and 6-8 from Applied Materials, Grill et al. and Lee et al.

Therefore, because Applied Materials, Grill et al. and/or Lee et al. do not disclose a multi-layered film meeting the combination of limitations recited in Claims 1-10, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Appl. No. : 10/783,044
Filed : February 19, 2004

Conclusion

Applicant respectfully submits that this application is in condition for allowance, early notification of which would be appreciated. The Examiner is respectfully invited to contact the undersigned at the telephone number provided below with any concerns or questions regarding this application.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 22 February 2006

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